

## ***SAFETY ALERT***

### **Piping for Water Sprinkler and Deluge Systems**



Rubber-type hoses accepted by MSHA as flame-resistant per testing requirements listed under 30 CFR § 18.65 have been used for piping in deluge-type water spray and water sprinkler systems. Piping in these systems is a critical fire-control component, and should be capable of withstanding extreme heat for an extended period of time so that water can continue to be applied during a fire emergency.

Standards for the installation of water sprinkler systems at main and secondary belt drive areas in underground coal mines are under 30 CFR § 75.1101-7. Fire-control components must be installed, as far as practicable, in accordance with recommendations set forth in National Fire Protection Association 1968-1969 edition, Code No. 13 (NFPA No. 13), "Installation of Sprinkler Systems." Mining properties, which would include underground coal mines, are listed as an Ordinary Hazard Occupancy by the NFPA.

Piping for water sprinkler systems should conform to the materials listed in Table No. 3002 of NFPA No. 13. Rubber-type hoses are not listed among the acceptable materials. NFPA No. 13 indicates, in Section 3003, that other types of piping can be used if they have been investigated and listed for use in water sprinkler systems by a nationally recognized testing and inspection agency and the material is acceptable to the authority having jurisdiction. Although MSHA is the authority having jurisdiction with regard to fire suppression in the mining industry, testing conducted by MSHA does not qualify as an investigation conducted by a nationally recognized testing and inspection agency.

The minimum diameters of steel pipe used for branch lines are listed under Section 3040 Schedule for Ordinary Hazard Occupancies. Under Section 3041, the minimum pipe size listed is one inch. Smaller sizes may not be capable of delivering the amount of water necessary to successfully suppress or extinguish a fire. Section 3022 allows for sprinkler systems to be hydraulically designed in lieu of using the schedule under Section 3040.

Rubber-type hoses may pose safety hazards when used as components of deluge-type water spray systems and water sprinkler systems. The hoses may not withstand the extreme heat long enough to suppress or extinguish a fire. These hoses are also susceptible to movement when pressurized or when water starts flowing, which could cause water to not be applied to a fire. Steel piping that is adequately secured is more effective for preventing such movement and for withstanding the heat of a fire.